

**COMPOSITE COVER WITH ELECTRICAL BRIDGE****BACKGROUND OF THE INVENTION****Field of the Invention**

[0001] The invention relates in general to a sealed cover that allows an electrical connection between the inside of the cover and the outside of the cover. In particular, the invention relates to a composite cover with an integrally formed electrical connector to form an electrical bridge between an electrical device inside the cover and an electrical source outside the cover.

**Description of the Related Art**

[0002] Typically, a sealed cover with electrical connectors for allowing an electrical connection between the inside of the cover and the outside of the cover required holes in the cover through which wiring connectors are assembled with sealing grommets or bulk dispensed sealers.

**SUMMARY OF THE INVENTION**

[0003] A composite cover with an electrical bridge is disclosed. The cover comprises a base component and a housing mounted to the base component defining an enclosure therein. Preferably, the housing made of non-conductive material. At least one electrical connector is integrally formed with the housing. The electrical connector including one or more electrical leads that extend through the housing for allowing electrical energy to pass from an electrical source outside the housing to an electrical device within the enclosure, thereby forming an electrical bridge between the electrical source and the electrical device.

**BRIEF DESCRIPTION OF THE DRAWINGS**

[0004] In the drawings:

[0005] Figure 1 is a diagrammatic cross-section of a composite cover with an electrical bridge according to an embodiment of the invention;

[0006] Figure 2 shows a cutaway perspective view of a valve cover with an electrical bridge according to the principles of the invention;

[0007] Figure 3 shows an exploded perspective view of a transmission oil pan with an electrical bridge according to the principles of the invention; and

[0008] Figure 4 shows a perspective view of the transmission oil pan of Figure 3.

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**CLAIMS**

What is claimed is:

1. A composite cover with an electrical bridge, comprising:

a base component;

a housing mounted to the base component defining an enclosure therein, the housing made of non-conductive material;

at least one electrical connector integrally formed with the housing, the at least one electrical connector including one or more electrical leads that extend through the housing for allowing electrical energy to pass from an electrical source outside the housing to an electrical device within the enclosure, thereby forming an electrical bridge between the electrical source and the electrical device.

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**AMENDED CLAIMS**

[received by the International Bureau on 02 February 2004 (02.02.04);  
new claims 2-10 added (2 pages)]

1. A composite cover with an electrical bridge, comprising:  
  
a base component;  
  
a housing mounted to the base component defining an enclosure therein, the housing made of non-conductive material;  
  
at least one electrical connector integrally formed with the housing, the at least one electrical connector including one or more electrical leads that extend through the housing for allowing electrical energy to pass from an electrical source outside the housing to an electrical device within the enclosure, thereby forming an electrical bridge between the electrical source and the electrical device.
2. The cover according to Claim 1, further comprising a seal disposed between the base component and the housing.
3. The cover according to Claim 1, wherein the housing made of non-conductive material.
4. The cover according to Claim 1, wherein the cover comprises a valve cover for an internal combustion engine of a vehicle.
5. The cover according to Claim 4, wherein the base component comprises a cylinder head of the internal combustion engine.
6. The cover according to Claim 1, wherein the cover comprises an oil pan.
7. The cover according to Claim 6, wherein the housing comprises a bottom pan flange.
8. The cover according to Claim 7, further comprising a premold positioned along a periphery of the bottom pan flange.

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9. The cover according to Claim 7, further comprising a gasket disposed between the bottom pan flange and a fluid filter.

10. The cover according to Claim 6, wherein the base component comprises a transmission.